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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,457	08/26/2003	Toshio Yokoyama	2003_1207A	3237

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EXAMINER

LAMB, BRENDA A

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/647,457

Applicant(s)

YOKOYAMA ET AL.

Examiner

Brenda A. Lamb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 19-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-18, 22, 23, 25-26, 28-30 and 33 is/are rejected.
- 7) ☒ Claim(s) 4, 24, 27, 31 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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Applicant's election without traverse of Group I in the reply filed on 7/07/2006 is acknowledged.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Ang 5,938,845.

Ang teaches the design of an apparatus for processing a substrate which is comprised of a processing bath 220 for processing the substrate by bringing the

substrate into contact with a processing liquid; and a heat-insulating tank for holding the processing liquid in said processing bath at a predetermined temperature with a thermal medium comprising a liquid. Ang processing bath is capable of holding a variety of processing liquids including one which is produced by mixing a plurality of solutions since it teaches every positively claimed element of the apparatus. Note it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Thus Ang teaches every element of the claimed apparatus set forth in claim 16. With respect to claim 18, Ang processing bath is capable of holding an electroless plating solution since it teaches every positively claimed element of the apparatus. Note it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Ang 5,938,845 in view Reavell.

Ang is applied for the reasons noted above. Ang fails to teach the apparatus includes a heated liquid supply tank for storing and heating the liquid as said thermal medium wherein the heat-insulating tank and the heated liquid supply tank are connected to each other for circulating the heated liquid as said thermal medium therebetween. However, it would have been obvious to modify the Ang apparatus by providing an additional heating means to controllably heat the thermal medium and which would include a heated liquid supply tank for storing and heating the liquid as said thermal medium wherein the heat-insulating tank and the heated liquid supply tank are connected to each other for circulating the heated liquid as said thermal medium therebetween such as taught by Reavell for the obvious advantage of greater control of the temperature of the thermal medium.

Claims 22-23 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ang 5,938,845 in view of Mathieu.

Ang is applied for the reasons noted above. Ang fails to teach the processing head is comprised of a substrate holder for holding the substrate. However, it would have been obvious to modify the Ang apparatus by providing the processing head with a substrate holder for holding the substrate and arrange substrate holder relative to the heat insulating tank such that heat-insulating tank surrounds the substrate holder such as taught by Mathieu for the taught advantage of greater control of the plating process. Thus claim 22 is obvious over the above cited references. With respect to claim 33, Ang processing bath is capable of holding an electroless plating solution since it teaches every positively claimed element of the apparatus. Note it has been held that a

recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). With respect to claim 23, both Ang and Mathieu teach a processing liquid retrieving system for retrieving the processing liquid which has been used to process the substrate from the processing head and returning the retrieved processing liquid to the processing liquid supplying system.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ang 5,938,845 in view of Mathieu and Reavell.

Ang and Mathieu are applied for the reasons noted above. Ang fails to teach the apparatus includes a heated liquid supply tank/hot water supply tank having a temperature regulator for storing and heating the liquid as said thermal medium wherein the heat-insulating tank and the heated liquid supply tank are connected to each other for circulating the heated liquid as said thermal medium therebetween. However, it would have been obvious to modify the Ang apparatus by providing an additional heating means to controllably heat the thermal medium and which would include a heated liquid supply tank with temperature regulator for storing and heating the liquid as said thermal medium wherein the heat-insulating tank and the heated liquid supply tank are connected to each other for circulating the heated liquid as said thermal medium

therebetween such as taught by Reavell for the obvious advantage of greater control of the temperature of the thermal medium.

Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ang 5,938,845 in view of Mathieu and Matsumura et al.

Ang and Mathieu are applied for the reasons noted above. Ang fails to teach the liquid supplying system and the liquid retrieving system is comprise of a temperature regulator and the liquid supplying system includes a stirrer. However, it would have been obvious given the modified Ang apparatus to flow the excess coating in the Ang processing head to processing liquid supplying system which includes a processing liquid supply tank with a temperature regulator and stirrer such as taught by Matsumura et al for the obvious advantage of increasing the uniformity of the temperature of the electroless plating solution in the processing head without the creating turbulence in the processing head (see column 7 lines 21-44). Further, it would have been prima facie obvious given the modifications of the Ang apparatus as discussed above to provide the retrieving system with a temperature regulator since Matsumura et al teaches heating the plating solution outside of the plating bath for the obvious advantage of increasing the uniformity of the temperature of the electroless plating solution in the processing head without the creating turbulence in the processing head or processing bath (see column 7 lines 21-44).

Claims 12 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al 4,406,250 in view of Ang 5,938,845.

Araki et al teaches an apparatus for processing substrates which is comprised of the following elements: a processing bath 1; a plurality of solution supply tanks and metering device for supplying the solutions in amounts required to produce the processing liquid to the processing bath; and heating unit for maintaining or keeping the processing liquid in the processing bath at a predetermined temperature (heater or steam pipe). Araki et al teaches at column 4 lines 13-23 that the processing bath may also include a stirrer and a heater. Araki et al fails to teach his apparatus is comprised of a heat insulating unit. However, it would have been obvious to modify the Araki et al by substituting its heating means for the processing bath with Ang heating means which obviously acts to insulate the processing bath via double walls of the processing bath with thermal medium arranged between the walls and thermal element arranged on the outer walls for the taught of increasing uniformity of the temperature of the plating solution contained in the plating bath. With respect to claim 15, Araki et al teaches the processing bath is capable of holding an electroless plating solution since it teaches every positively claimed element of the apparatus. Note it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). With respect to claim 14, Araki et al teaches at column 4 lines 13-23 that the processing bath may also include a stirrer.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ang 5,938,845 in view of Mathieu and Araki et al.

Ang and Mathieu are applied for the reasons noted above. Ang fails to teach a heating head for contacting the processing liquid held in the processing head in order to heat the processing liquid. However, it would have been obvious to modify the Ang apparatus by providing the processing head with heating head or attachment since Araki et al teaches at column 4 lines 13-23 for heating the plating solution to the desired temperature.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al 4,406,250 in view of Ang 5,938,845 and Werner 4,761,077.

Araki et al and Ang are applied for the reasons noted above. Araki fails to teach the processing bath is arranged to introduce the solutions supplied from the solution supply tanks, tangentially into the processing bath thereby to mix the introduced solutions into the processing liquid. However, it would have been obvious given the modifications of the Araki et al apparatus as discussed above to arrange to introduce the solutions supplied from the solution supply tanks tangentially into the processing bath thereby to mix the introduced solutions into the processing liquid since Werner teaches arranging inlet ports for a mixing chamber such as the Araki et al mixing chamber or processing bath in such a manner for the taught advantage of more thorough mixing of components therein.

Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segawa et al 6,638,564 in view of Hillman et al 4,856,456 .

Segawa et al teaches as shown in Figures 8-10 an apparatus for processing a substrate which is comprised of a plurality of solution supply tanks for individually holding a plurality of solutions, respectively, to be mixed into a processing liquid, the solution supply tanks having respective temperature regulators (elements 52a,52b); a mixing tank connected to the solution supply tanks for mixing the solutions supplied respectively from the solution supply tanks into the processing liquid; and a coating means for applying the processing liquid to the substrate. Segawa et al teaches that the pipes from the solution supply tanks to the coating means are heated in order to prevent a drop of the temperature of the processing substance prior to coating. Therefore, it would have been obvious to provide the Segawa et al mixing tank with a temperature regulator since Segawa et al teaches providing a heating means for heating the processing fluid up until the processing liquid is applied to the substrate for the taught advantage preventing a drop of the temperature of the processing substance prior to coating. Further, it would have been obvious given the modifications of the Segawa et al apparatus as discussed above by substituting its work holder with another work holder such as taught by Hillman et al which acts as a bath for immersion of the substrate therein for the taught advantage of enabling one to apply uniformly apply a processing fluid onto the substrate. Thus claim 1 is obvious over the above cited references. With respect to claim 3, Segawa et al teaches the mixing tank has a stirrer 58. With respect to claim 5, Segawa et al teaches the processing bath is capable of holding an electroless plating solution since it teaches every positively claimed element of the apparatus. Note it has been held that a recitation with respect to the manner in

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which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). With respect to claim 2, Segawa et al teaches a heater is embedded in the wall of the means for holding the substrate and for processing the substrate with coating thereon. Therefore, it would have been obvious given the modifications of the Segawa et al as discussed above to embed a heater within the Hillman et al work holder/processing bath and the embedded heater acts as a insulating unit by keeping the processing liquid at a predetermined temperature since Segawa et al teaches doing so to prevent a drop in temperature of the processing liquid during the coating process.

Claims 6-8 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tewell 6,120,175 in view of Heo et al 6,398,904.

Tewell teaches the design of an apparatus which is comprised of the following elements: a plurality of solution supply tanks 26 for individually holding a plurality of solutions, respectively, to be mixed into a processing liquid; a plurality of mixing tanks (12 and 12') connected to the solution supply tanks for mixing the solutions supplied respectively from the solution supply tanks into the processing liquid; and a receiving station to receive the processing fluid from the mixing tanks; a plurality of stop valves 58 disposed in the processing liquid supply passages, respectively; and a controller 32 for controlling the stop valves to selectively open and close said processing liquid supply

passages. Tewell fails to teach the receiving station is a processing bath connected to the mixing tanks through respective processing liquid supply passages for processing the substrate by bringing the substrate into contact with the processing liquid which is introduced from the mixing tanks into the processing bath. However, it would have been obvious to modify the Tewell apparatus by providing the receiving station as a processing bath for processing the substrate by bringing the substrate into contact with the processing liquid which is introduced from the mixing tanks into the processing bath since Heo et al teaches mixtures such as those taught by Tewell are used in a processing bath or container for processing substrates (see column 6 lines 30-35). With respect to claim 11, Tewell is capable of holding an electroless plating solution since Tewell teaches his apparatus can be used to process a variety of mixtures of fluids and teaches every positively claimed element of the apparatus set forth in claims 11 and 6. Note it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). With respect to claim 8, Tewell teaches the controller controls the stop valves such that while the processing liquid produced in one of the mixing tanks is being supplied to the processing bath, another one of the mixing tanks is prepared to supply the processing liquid to the processing bath. With respect to claim 10, Heo et al teaches in the process bath includes a bubbler which generates bubbles in

the process bath to improve reaction of the processing liquid in the process bath and the bubbler acts as a stirrer by stirring/mixing/agitating the processing liquid. With respect to claim 7, Heo et al teaches a heating means for keeping the processing liquid in the process bath at a predetermined temperature and the heating means obviously acts as a heat-insulating unit in that the heater positioned on the bottom of the process bath prevents the passage of heat to its surroundings. Although Tewell fails to teach the mixing tanks and supply tanks includes a temperature regulator, it would have been prima facie obvious the Tewell apparatus to provide heaters or temperature regulators within the above cited given the disclosure of Heo et al of the importance of controlling temperature in such processes.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tewell 6,120,175 in view of Heo et al 6,398,904 and Brunt et al.

Tewell 6,120,175 and Heo et al are applied for the reasons noted above. Tewell fails to teach each of the mixing tanks includes a stirrer. However, it would have been obvious given the modifications of the Tewell apparatus as discussed above to provide a stirrer in each of the mixing tanks since it is known to use the combination of a stirrer and conical bottom mixing tank to facilitate the mixing and discharge of ingredients within the mixing tank as shown by Brunt et al.

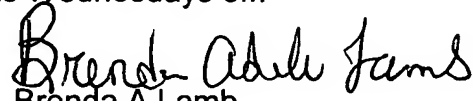
Claims 4, 24,27 and 31-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Any inquiry concerning this communication should be directed to Brenda A.

Lamb at telephone number (571) 272-1231. The examiner can normally be reached on

Monday-Tuesday and Thursday-Friday with alternate Wednesdays off.

A handwritten signature in black ink, appearing to read "Brenda A. Lamb". The signature is written in a cursive, flowing style.

Brenda A Lamb

Examiner

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